Preparation of xylylenediamine by continuously hydrogenating liquid phthalonitrile

Abstract

A process for preparing xylylenediamine by continuously hydrogenating liquid phthalonitrile over a heterogeneous catalyst in the presence of liquid ammonia in a reactor, in which a portion of the reactor effluent is recycled as a liquid circulation stream continuously to the reactor inlet (circulation mode), in which a stream of a phthalonitrile melt in liquid form is conducted by means of a mixer unit into the circulation stream around the hydrogenation reactor, the phthalonitrile conversion in the reactor on single pass being greater than 99%, and the circulation stream consisting to an extent of greater than 93% by weight of liquid ammonia and xylylenediamine and not comprising any further solvent for phthalonitrile.